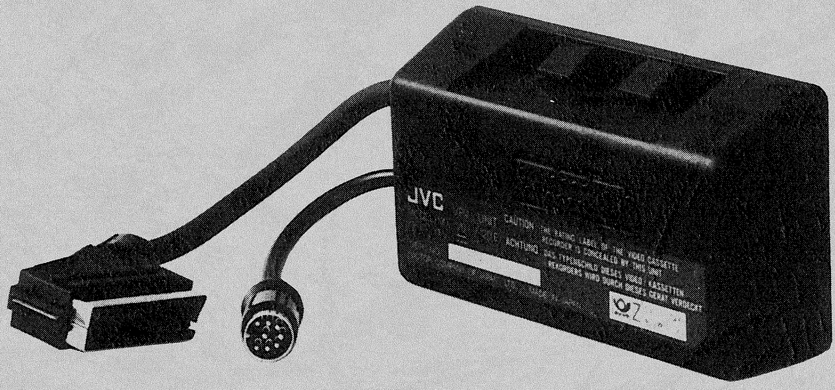
JVC

SERVICE MANUAL

VPT/VPS ADAPTER

VU-V140E/V150E



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No. 82128
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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

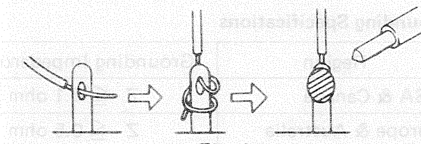


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

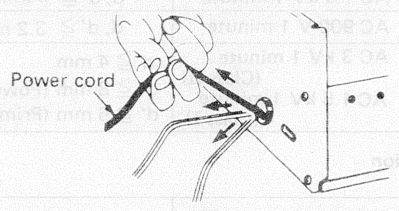


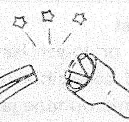
Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).



Cut close to connector

Fig. 3

       (2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

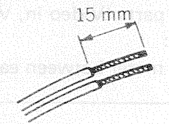


Fig. 4

       (3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

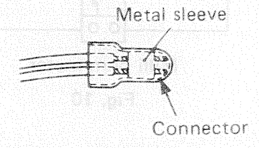


Fig. 5

       (4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

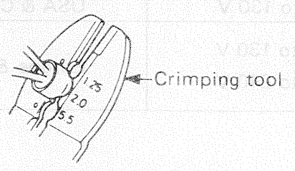


Fig. 6

       (5) Check the four points noted in Fig. 7.

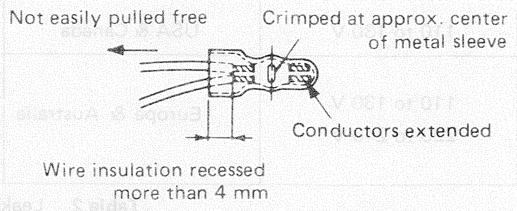

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

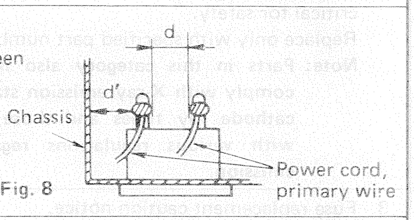


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

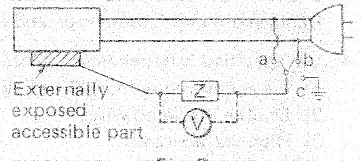


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

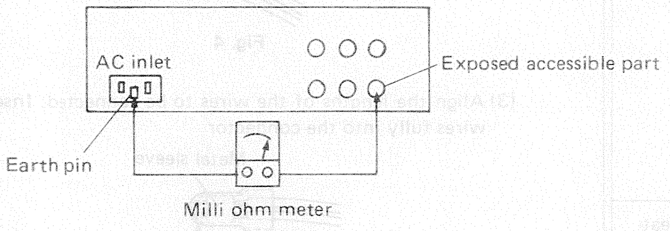


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	—	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

JVC

INSTRUCTIONS

VU-V140E
VPT ADAPTER

VU-V150E
VPT/VPS ADAPTER

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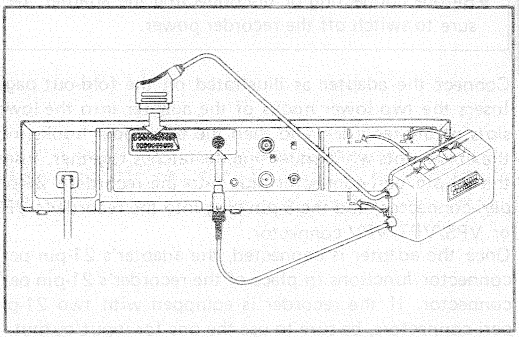
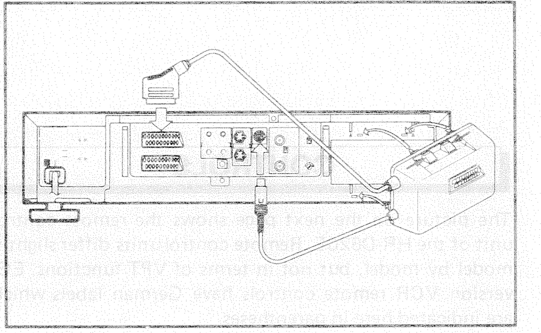
VPT/VPS-ADAPTER VU-V150E

PU30425-1056





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PRECAUTIONS

- The rating plate is on the unit.

CAUTION:
The rating label of the video cassette recorder will be concealed by this unit.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

Thank you for purchasing the JVC VU-V140E VPT adapter or VU-V150E VPT/VPS adapter. These adapters work with JVC's teletext-compatible VCRs, offering compatibility with the TOP and FASTEXT teletext broadcasts as well as with other teletext systems, with "automatic system detection and switching". Furthermore, the remote control units of these VCRs also gain additional functions when the adapter is connected. This instruction booklet describes only the teletext-related functions. For VPS information regarding the VU-V150E VPT/VPS adapter, refer to the instruction manual accompanying each VCR.

FEATURES

- Compatible with TOP and FASTEXT as well as conventional teletext systems.
- Takes full advantage of the page access ease the TOP and FASTEXT systems have to offer.
- Multiple page access modes for easy teletext viewing even with other systems.
- Timer programming with automatic read of teletext TV schedule information.
- Timer recording of closed-caption (closed-subtitle) broadcasts.
- Colour on-screen remote timer programming and clock setting.
- On-screen operational instructions in English, German, Italian, or Swedish.

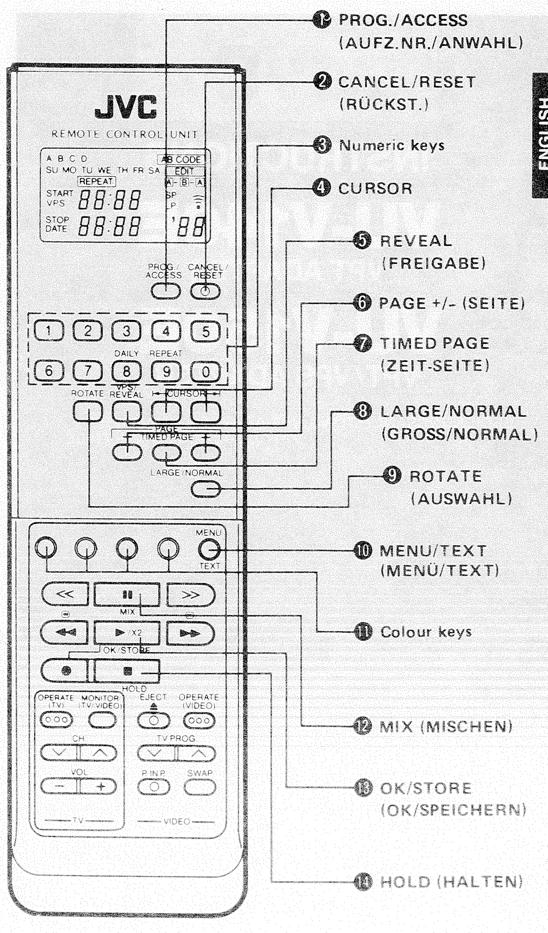
CONNECTIONS

Note:
- Before connecting or disconnecting the adapter, be sure to switch off the recorder power.

Connect the adapter as illustrated on the fold-out page: Insert the two lower hooks of the adapter into the lower slots of the recorder, and then the two upper hooks into the upper slots while squeezing the latches together. Insert the 21-pin peri-connector plug into the recorder's 21-pin peri-connector, and the 8-pin plug into the recorder's VPT or VPS/VPT/VPV connector.
Once the adapter is connected, the adapter's 21-pin peri-connector functions in place of the recorder's 21-pin peri-connector. If the recorder is equipped with two 21-pin peri-connectors, be sure to use the one for input/output.
The same on-screen information is available via the AV and RF connections.

CONTROLS

The picture on the next page shows the remote control unit of the HR-D620E. Remote control units differ slightly model by model, but not in terms of VPT functions. EG-version VCR remote controls have German labels which are indicated here in parentheses.


JVC
REMOTE CONTROL UNIT
A B C D
SU MO TU WE TH FR SA
REPEAT
START
VPS
STOP
DATE
AB CODE
EDIT
A - B - A
SP
LP
PROG./ACCESS
CANCEL/RESET
1 2 3 4 5
DAILY REPEAT
6 7 8 9 0
ROTATE
VPS/REVEAL
CURSOR
PAGE
TIMED PAGE
LARGE/NORMAL
MENU
TEXT
MIX
/X2
OK/STORE
HOLD
OPERATE (TV)
MONITOR (TV/VIDEO)
EJECT
OPERATE (VIDEO)
CH
TV PROG
VOL
P.IN.P.
SWAP
TV
VIDEO
① PROG./ACCESS (AUFZ.NR./ANWAHL)
② CANCEL/RESET (RÜCKST.)
③ Numeric keys
④ CURSOR
⑤ REVEAL (FREIGABE)
⑥ PAGE +/- (SEITE)
⑦ TIMED PAGE (ZEIT-SEITE)
⑧ LARGE/NORMAL (GROSS/NORMAL)
⑨ ROTATE (AUSWAHL)
⑩ MENU/TEXT (MENÜ/TEXT)
⑪ Colour keys
⑫ MIX (MISCHEN)
⑬ OK/STORE (OK/SPEICHERN)
⑭ HOLD (HALTEN)

① PROG./ACCESS (AUFZ.NR./ANWAHL)
To select a programme number in timer programming, or to select the page access mode in teletext viewing.

② CANCEL/RESET (RÜCKST.)
To cancel the programmed timer data in timer programming, or to instantly return to page 100 in teletext viewing.

③ Numeric keys
To enter data in all on-screen setting operations.

④ CURSOR ⇤ / ⇥
To move the cursor in either direction. Use the CURSOR ⇥ button to obtain a cursor on the screen.

⑤ REVEAL (FREIGABE)
To reveal hidden information such as VPS times on TV schedule pages or other information on special teletext pages.

⑥ PAGE –/+ (SEITE –/+)
To put a page in memory that is one page before (–) or after (+) the pages currently in memory. Or use to change the subpage number in single increments in the Timed Page mode.

⑦ TIMED PAGE (ZEIT-SEITE)
To preset one selected subpage from among automatically changing "timed" pages in the Group Page Access mode, or to hold one subpage in each memory position in the Serial or Direct Page Access mode. (See pages 27, 28 and 29.)

⑧ LARGE/NORMAL (GROSS/NORMAL)
To enlarge the on-screen information. Pressing it once enlarges the upper half of the screen; pressing again enlarges the lower half. To return to the normal screen, press it once again.

⑨ ROTATE (AUSWAHL)
To select teletext pages in succession.

⑩ MENU/TEXT (MENÜ/TEXT)
To call up an on-screen menu, or to return to normal TV pictures.

⑪ Colour keys
These keys function for TOP and FASTEXT systems for extremely easy, colour-coded page access. (See pages 19 and 22.)

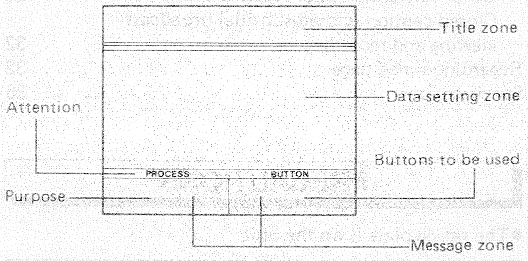
⑫ MIX (MISCHEN)
To view normal TV pictures with teletext information superimposed.

⑬ OK/STORE (OK/SPEICHERN)
To confirm and store the data in on-screen setting operations.

⑭ HOLD (HALTEN)
To stop automatic change of timed pages.

ON-SCREEN DISPLAY

The on-screen display is divided into three zones: a title zone showing the setting mode, a data setting zone, and a message zone where the left half describes the purpose of an operation and the right one shows which key or button to use.


Title zone
Data setting zone
Attention
Buttons to be used
PROCESS
BUTTON
Purpose
Message zone

Message example: SELECT LANGUAGE | < – >

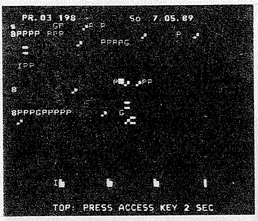
This means: "To select the language, move the cursor with either the CURSOR ⇤ or ⇥ button.

FOR CUSTOMERS LIVING IN AREAS WHERE THE TOP SYSTEM IS IN SERVICE

Presetting the adapter's memory

With the TOP system, broadcast stations transmit a page called the "TOP page" having a predetermined special page number for identification of the system. The TOP page is not visible with regular TOP broadcasts and this adapter is preprogrammed to respond to the TOP page signal. However, during test transmission of TOP broadcasts or with some broadcast stations, the TOP page is transmitted on a visible page. In such cases, it is necessary to preset the adapter's memory to respond to this TOP page signal, otherwise the adapter will not function for TOP broadcasts. For this purpose, proceed as follows:

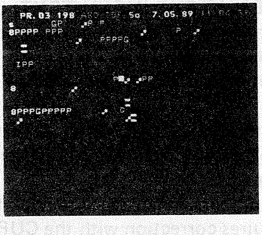
1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩ and select "1. TELETEXT".
2. Search for the TOP page (which looks like the following figure), or ask your broadcast station for the page number of the TOP page.
   - Some stations use page 198.


PR.03 198
So 7.05.89

TOP: PRESS ACCESS KEY 2 SEC

3. Press the PROG./ACCESS (AUFZ. NR./ANWAHL) button ① for about 2 seconds.
   - You will see the message "PLEASE WAIT".

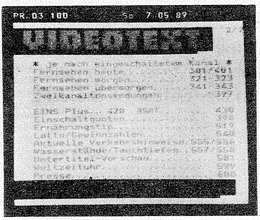
4. When the TOP page has been stored in memory, the message changes to "TOP PAGE NUMBER 000 3Fxx".
   - Here "000" represents a page number, 198 for example.


PR.03 198
So 7.05.89

Resetting the adapter's memory

Once you have changed the memory in this way, it is necessary to reprogramme it whenever necessary, for instance, when test transmission is finished and regular TOP transmission has started. (You will know this when the adapter becomes unable to detect TOP broadcasts.) For reprogramming the adapter's memory, proceed as follows:

1. Call up the menu screen using the MENU/TEXT (MENÜ/TEXT) button.
2. Select "1. TELETEXT".
3. With any teletext page on the screen, press the PROG./ACCESS (AUFZ. NR./ANWAHL) button for about 2 seconds.
4. The message "TOP PAGE NUMBER 3Fxx." will appear.

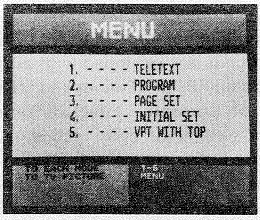

PR.03 100
So 7.05.89
VIDEOTEXT

INITIAL SETTING

Language setting

One of four languages (English, German, Italian or Swedish) can be selected for on-screen messages.

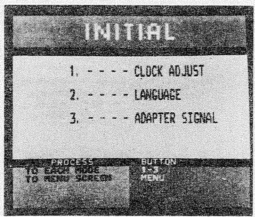
1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩. The menu (in one of the four languages, depending on the preset status) will appear on the screen. If the preset status is your choice, skip this setting operation.


MENU
1. - - - - TELETEXT
2. - - - - PROGRAM
3. - - - - PAGE SET
4. - - - - INITIAL SET
5. - - - - VPT WITH TOP
TO EACH MODE
TO TV PICTURE
1-5
MENU

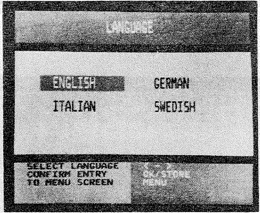
Note:

- "5. ---- VPT WITH TOP" appears only when the VCR's tuner is tuned to a station which is transmitting TOP broadcasts.

2. To change the language, press numeric key "4" ③. The menu screen will change to the Initial Set mode which allows (1) clock setting and (2) language setting as well as (3) adapter output signal setting.


INITIAL
1. - - - - CLOCK ADJUST
2. - - - - LANGUAGE
3. - - - - ADAPTER SIGNAL
PROCESS
TO EACH MODE
TO MENU SCREEN
BUTTON
1-3
MENU

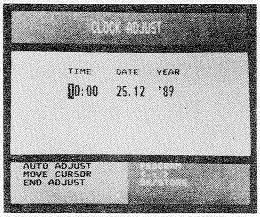
3. Press numeric key "2" to engage the Language Set mode.


LANGUAGE
ENGLISH
GERMAN
ITALIAN
SWEDISH
SELECT LANGUAGE
CONFIRM ENTRY
TO MENU SCREEN

4. Move the cursor to a desired language with either CURSOR button ④.
5. Press the OK/STORE (OK/SPEICHERN) button ⑬.
   - The screen will change to the corresponding display in the selected language.
6. To go back to the menu screen, press the MENU/TEXT (MENÜ/TEXT) button. To view normal TV pictures, press the MENU/TEXT (MENÜ/TEXT) button in the Menu mode.

Clock setting

The VCR clock can be checked or adjusted on the screen. Accurate clock setting is crucial for accurate timer recording.


CLOCK ADJUST
TIME
DATE
YEAR
AUTO ADJUST
MOVE CURSOR
END ADJUST

TIME 00:00 DATE 25.12 YEAR '89

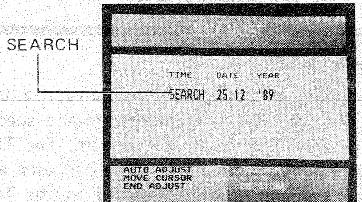
A. Manual setting

1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩.
2. Press numeric key "4" ③. The menu screen will change to the Initial Set mode.
3. Press numeric key "1" to engage the Clock Adjust mode.
4. Enter the time, date and year using the numeric keys.
   - ●The cursor moves automatically after every 2-digit number input.
   - ●If wrong numbers are entered, go back to the position which requires correction with the CURSOR " ⇤ " button and re-enter the data.
5. If all data is OK, press the OK/STORE (OK/SPEICHERN) button ⑬.
   - ●The VCR clock is set and timekeeping starts.
6. To go back to the menu screen, press the MENU/TEXT (MENÜ/TEXT) button.

B. Automatic setting

The clock data can be set automatically by reading time information from teletext pages. First set the VCR tuner to a channel broadcasting teletext programmes accompanied by time information.

1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩.
2. Press numeric key "4" ③.
3. Press the PROG./ACCESS (AUFZ.NR./ANWAHL) button ❶.
   - ●"SEARCH" will appear in place of the time data while the time information is being searched.
   - ●It may take some time to complete time setting. This is not due to any defect of the unit.



CLOCK ADJUST

TIME DATE YEAR
SEARCH 25.12 '89

AUTO ADJUST
MOVE CURSOR
END ADJUST

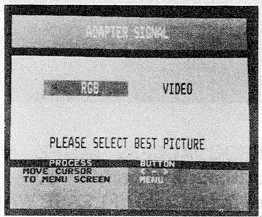
- ●The date and year cannot be set automatically, and remain as previously set. If clock setting has not been done on the VCR's FDP, "01.01" and "00" (indicating January 1, 2000) will appear for the date and year. Enter the data manually with 10-key input.

Adapter signal setting

1. Press numeric key "3" ③ with the INITIAL menu on the screen. The screen will change to the Adapter Signal Setting mode.
2. Move the cursor to select either "RGB" or "VIDEO" depending on the available picture quality on the screen.

Note:

●With S-VHS VCRs, select "VIDEO" if the VCR's VIDEO OUT SELECT switch is set to "Y/C".



ADAPTER SIGNAL

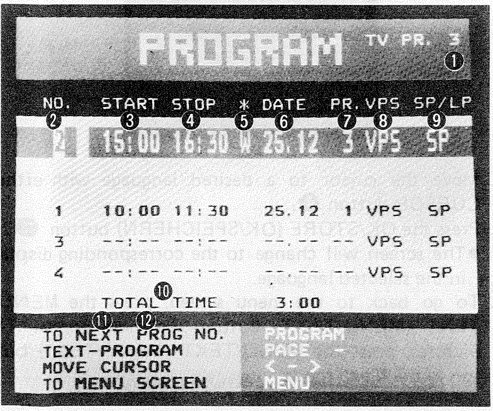
RGB VIDEO

PLEASE SELECT BEST PICTURE

PROCESS BUTTON
MOVE CURSOR < - >
TO MENU SCREEN MENU

TIMER PROGRAMMING

In addition to LCD timer programming and direct VCR timer programming, your remote control also allows on-screen remote timer programming when the adapter is connected to the VCR.



```
PROGRAM TV PR. 3
NO.  START STOP  * DATE  PR. VPS SP/LP
 2   15:00 16:30 W 25.12  3  VPS  SP

 1   10:00 11:30   25.12  1  VPS  SP
 3   --:-- --:--   --.-- --  VPS  SP
 4   --:-- --:--   --.-- --  VPS  SP
     TOTAL TIME    3:00
TO NEXT PROG NO.   PROGRAM
TEXT-PROGRAM       PAGE -
MOVE CURSOR        < - >
TO MENU SCREEN     MENU
```

(The picture shows the on-screen display of a twin-speed model. With single-speed VCRs the column for SP/LP setting is not included, and VCRs with 8 timer programme memories have a second Programme Set page for programme memories 5, 6, 7, and 8.)

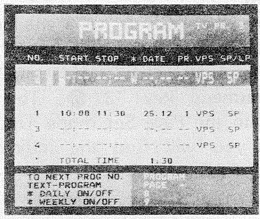
❶ Currently tuned-in channel
❷ Programme number
❸ Start time
❹ Stop time
❺ Repeat
  W (W): for weekly serial recording
  D (T): for daily serial recording
❻ Date
❼ Channel
❽ VPS (Not displayed when the VU-V140E is connected to a VCR which is not equipped with a VPS decoder.)
❾ Recording mode: SP/LP (Twin-speed VCRs only.)
❿ Total time of currently effective timer recordings: When set for weekly or daily recording, the time segment is counted only once. (With 8-event timer models, the total time of all 8 events is shown on each page.)
⓫ Overlapped programme warning: "OVERLAP" shows the numbers of programmes set for recording within 2 weeks whose preset time spans overlap. Overlap warning does not appear when the programmes with preset time spans that overlap are set to record from the same channel. In this case, the later preset programme will start only after the earlier one is completed.
⓬ Full memory warning: "PROG. OCCUPIED".

Note:

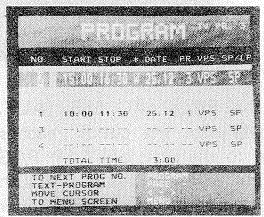
●Timer programming is not possible unless the clock has been set.

A. Manual programming

1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩ .
2. Press numeric key "2" ③ . The menu screen will change to the Programme Set mode, and programme number "1" is ready for entry.


PROGRAM
NO. START STOP * DATE PR. VPS SP/LP
1 10:00 11:30 25.12 1 VPS SP
3 --:-- --:-- --.-- -- VPS SP
4 --:-- --:-- --.-- -- VPS SP
TOTAL TIME 1:30
TO NEXT PROG NO.
TEXT-PROGRAM
* DAILY ON/OFF
* WEEKLY ON/OFF

3. Press the PROG./ACCESS (AUFZ.NR./ANWAHL) button ① to advance to the next programme number.
4. Enter the start time, stop time, etc. in succession with the numeric keys and other relevant keys according to the message at the bottom of the screen.

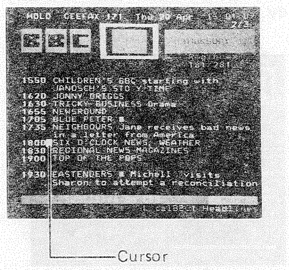

PROGRAM
NO. START STOP * DATE PR. VPS SP/LP
1 10:00 11:30 25.12 1 VPS SP
3 --:-- --:-- --.-- -- VPS SP
4 --:-- --:-- --.-- -- VPS SP
TOTAL TIME 3:00
TO NEXT PROG NO.
TEXT-PROGRAM
MOVE CURSOR
TO MENU SCREEN

5. To return to the menu screen, press the MENU/TEXT (MENÜ/TEXT) button.
   - Now the timer programming data has been transferred to the VCR. Advancing to another programme by pressing the PROG./ACCESS (AUFZ.NR./ANWAHL) also transfers the data to the VCR.

B. Automatic programming

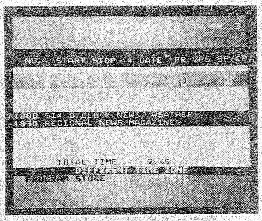
The timer can be programmed automatically by reading the broadcast schedule information on teletext pages.

1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩ .
2. Press numeric key "1" ③ . This calls up teletext page 100 (teletext contents page).


HOLD CEEFAX 171
1550 CHILDREN'S BBC starting with JANOSCH'S STO Y TIME
1620 JONNY BRIGGS
1630 TRICKY BUSINESS Drama
1655 NEWSROUND
1705 BLUE PETER
1735 NEIGHBOURS Jane receives bad news in a letter from America
1800 SIX O'CLOCK NEWS, WEATHER
1830 REGIONAL NEWS MAGAZINES
1900 TOP OF THE POPS
1930 EASTENDERS Michell visits Sharon to attempt a reconciliation
Cursor

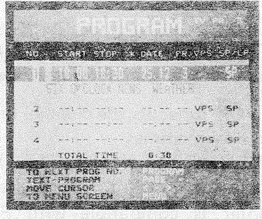
3. Select a page showing a broadcast programme schedule.
   - There are several ways of accessing pages. For details refer to "TELETEXT VIEWING" on page 21.
4. Press the CURSOR " ⇥ " button ④: the cursor will appear.
5. Move the cursor to the programme you want to preset the timer to record with either CURSOR button.
   - If you wish to check hidden information, press the REVEAL (FREIGABE) button ⑤ .

6. Press the OK/STORE (OK/SPEICHERN) button ⑬ .
   - The screen will change to the Programme Check mode.


PROGRAM
NO. START STOP * DATE PR. VPS SP/LP
1800 SIX O'CLOCK NEWS, WEATHER
1830 REGIONAL NEWS MAGAZINES
TOTAL TIME 2:45
DIFFERENT TIME ZONE
PROGRAM STORE

7. Check whether all items have been read correctly. Also check the title of the programme.
   - The first line of the title is written in.
   - Hidden information, if any, in the title of the programme, cannot be read.
   - The channel from which the programme information has been read is set as the channel number in the "PR." column.
   - To cancel the title only, press the CANCEL/RESET (RÜCKST.) button ②. Pressing the same button again cancels all read-in data.
   - The empty programme memory with the lowest number is automatically selected.
   - If all memories are full, the message "PROG. OCCUPIED" appears.
   - With VPS-capable models (either having a built-in VPS decoder or an adapter connected), the VPS code of a VPS programme is also automatically read and "VPS" appears in the "VPS" column. If the VPS time differs from the actual schedule, pressing the VPS button to cancel VPS recording will change the time data automatically. This is possible only in the Programme Check mode.

8. If the read-in data is not correct, correct it manually or re-do automatic programming.
   - To re-do automatic programming, go back to the previous teletext page by pressing the PAGE (SEITE) "–" button ⑥ and repeat steps 4 to 7.
   - To correct the data manually, use the CURSOR ④ and numeric keys ③ .
   - When programming to record a foreign broadcast, pay attention to the difference in time. If the VCR's clock and the teletext time information are different, a warning "DIFFERENT TIME ZONE" will appear. Correct the start and stop times accordingly.
   - With some teletext broadcasting systems, data reading errors may occur.
9. If all data is OK, press the OK/STORE (OK/SPEICHERN) button ⑬ .
   - Timer programming is completed.


PROGRAM
NO. START STOP * DATE PR. VPS SP/LP
2 --:-- --:-- --.-- -- VPS SP
3 --:-- --:-- --.-- -- VPS SP
4 --:-- --:-- --.-- -- VPS SP
TOTAL TIME 0:30
TO NEXT PROG NO.
TEXT-PROGRAM
MOVE CURSOR
TO MENU SCREEN

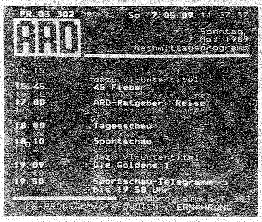
10. To continue programming, go back to the previous teletext page by pressing the PAGE (SEITE) "–" button and repeat steps 5 to 9.
11. To go back to the menu screen, press the MENU/TEXT (MENÜ/TEXT) button ⑩ .

Note:
- If the cursor will not advance to the desired programme on the teletext screen, press the CURSOR "–" button for at least two seconds. This will expand the range of programmes that can be selected.

C. TOP automatic programming

When TOP broadcasts are receivable, timer programming is simpler than that described so far.

1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩.
2. Press numeric key "5" ③. This will directly call a page guiding broadcast schedule pages.
3. Select the desired schedule page by pressing the yellow or green key.


PR. 03 302
ARD
So 7.05.89
Sonntag,
7. Mai 1989
Nachmittagsprogramm
15.45
dazu VT-Untertitel
45 Fieber
17.00
ARD-Ratgeber: Reise
18.00
Tagesschau
18.10
Sportschau
dazu VT-Untertitel
19.09
Die Goldene 1
19.50
Sportschau-Telegramm
bis 19.58 Uhr
ERNAHRUNG

4. Follow steps 4 through 11 of **"B. Automatic programming"**. (See page 16.)

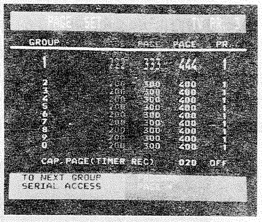
D. Programming for recording of closed-caption broadcasts

Closed-caption (closed-subtitle) broadcasts can also be timer-recorded, either by manual programming or automatic programming.

Preparation

- First tune the VCR in to a channel broadcasting the desired closed-caption programme.

1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩.
2. Press numeric key "3" ③. The menu screen will change to the Page Set mode. Under the page setting section you will find the indication "CAP. PAGE (TIMER REC)".


GROUP
PAGE
PR.
CAP. PAGE (TIMER REC)
020
OFF
TO NEXT GROUP
SERIAL ACCESS

3. Press the PROG./ACCESS (AUFZ. NR./ANWAHL) button ① until the cursor reaches the page number column to the right of "CAP. PAGE (TIMER REC)".
4. Using the numeric keys ③, enter the page number of a closed-caption broadcast to be timer-recorded.
5. Press either CURSOR button to obtain the indication "ON".

Timer programming

1. Programme the timer following the instructions in **"A. Manual programming"**, **"B. Automatic programming"**, or **"C. TOP automatic programming"**. (See pages 15, 16 or 19.)

- The desired programme will be recorded with captions.
- Once "CAP. PAGE (TIMER REC)" is set to ON for the respective channel, all preset programmes will be recorded with captions, provided that they are broadcasts with captions on the specified page.
- Recorded captions are monochrome.

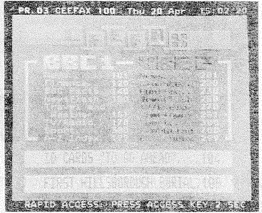
TELETEXT VIEWING

First set the VCR tuner to the channel broadcasting your desired teletext programmes.

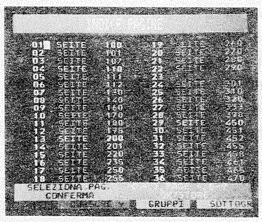
1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩.
2. Press numeric key "1" ③ to engage the Teletext mode.
   - The adapter is compatible with FASTEXT, TOP and other teletext systems with automatic system selection.
3. The teletext contents page (page 100) will be called up.
   - Then select the page you wish to view using one of the page access methods described in this section.

FASTEXT SYSTEM

The FASTEXT system is employed in the United Kingdom, Spain, and some other regions.


PR. 03 CEEFAX 100 Thu 20 Apr
RAPID ACCESS: PRESS ACCESS KEY

When a FASTEXT broadcast is received, you will find up to 4 subject categories displayed at the bottom of the screen under the Fastext programme, each in a different colour (Red, Green, Yellow, and Blue).


SEITE
SELEZIONA PAG.
CONFERMA
GRUPPI
SOTTOGR

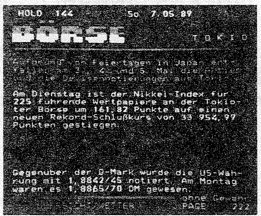
- To select a subject category, press one of the colour keys ⑬ which corresponds to the on-screen colour code of the category.
- While in the selected category, select the desired page by entering the corresponding page number with the numeric keys ③. To move between pages, use the PAGE (SEITE) buttons ⑥.

- You can cancel the Fastext page access system by pressing the PROG./ACCESS (AUFZ. NR./ANWAHL) button ❶ for 2 seconds. In this case, use regular page access modes described later.
- If you change the VCR's tuner channel while in the Fastext mode, the Fastext page access system is automatically cancelled, and you will be asked whether you choose or don't choose the Fastext page access system by the message "RAPID ACCESS: PRESS ACCESS KEY 2 SEC". To choose the Fastext system, press the PROG./ACCESS (AUFZ. NR./ANWAHL) button for 2 seconds, otherwise use regular page access modes described later.

TOP SYSTEM

The TOP system is a teletext service employed in West Germany.

When a TOP broadcast is received, you will find category and sub-category names (Block and Group) at the bottom of the screen in blue and yellow.

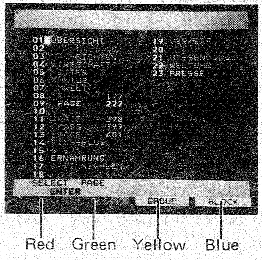

HOLD 144
So 7.05.89
BÖRSE
TOKIO
PAGE 222

Am Dienstag ist der Nikkei-Index für 225 führende Wertpapiere an der Tokioter Börse um 161,82 Punkte auf einen neuen Rekord-Schlußkurs von 33 954,99 Punkten gestiegen.

Gegenuber der D-Mark wurde die US-Wahrung mit 1,8842/45 notiert. Am Montag waren es 1,8865/70 DM gewesen.

- To move to the next block, press the blue key.
- To move to the next group in the same block, press the yellow key.
- To move to the next page in the same group, press the green key.
- To go back to the previous page in the same group, press the red key.

The TOP system offers a special "PAGE TITLE INDEX" page. To call up this page, press the CANCEL RESET (RÜCKST.) button ❷ anytime while in the Teletext mode.


01 ÜBERSICHT
09 PAGE 222
16 ERNAHRUNG
19
20
21
22
23 PRESSE
SELECT PAGE
ENTER
GROUP
BLOCK
Red
Green
Yellow
Blue

To go to the desired subject, move the cursor to the desired subject by pressing one of the coloured keys ⓫ and press the OK/STORE (OK/SPEICHERN) ⓭ button.

- Use the red key to scan TV guide pages (indicated in red).
- Use the green key to scan all titles in succession.
- Use the yellow button to scan "Group" titles (indicated in yellow).
- Use the blue button to scan "Block" titles (indicated in blue).

Notes:

- To go back to the contents page (page 100) from the page title index page, press the CANCEL RESET (RÜCKST.) button ❷ . To go back to the contents page from any other page, press the CANCEL RESET (RÜCKST.) button twice.
- You can cancel the TOP page access system by pressing the PROG./ACCESS (AUFZ. NR./ANWAHL) button ❶ for 2 seconds. In this case, use regular page access modes described later.

The following keys are useful while viewing teletext programmes of any system.

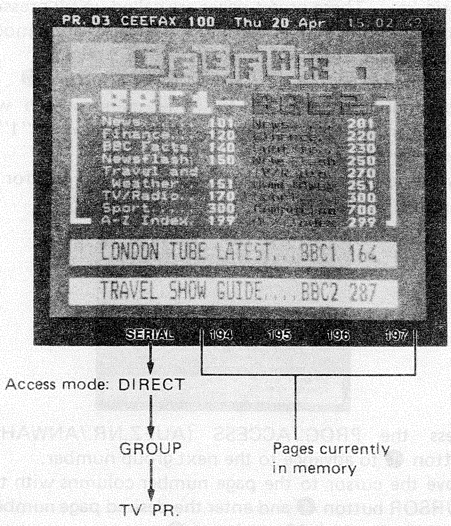
CANCEL/RESET (RÜCKST.)	to return to page 100 from anywhere instantly.
REVEAL (FREIGABE)	to view hidden information, if any.
LARGE/NORMAL (GROSS/NORMAL)	to enlarge the upper or lower half of the screen.
MIX (MISCHEN)	to view normal TV pictures with teletext information superimposed.
MENU/TEXT (MENÜ/TEXT)	to view normal TV pictures, press this button twice.
PROG./ACCESS (AUFZ.NR./ANWAHL)	to change the access mode.

Notes:

- TV/teletext mixed pictures are not available if an RGB-compatible AV television is used in the AV mode.
- Some of these buttons have other functions when not operating in the Text mode. To use them in the Text mode, first cancel the previously engaged operation mode; or to use them in modes other than Text, first cancel the Text mode.
- Playback of recorded teletext pages may have colour edging or blurring. This is not due to any defect of the unit.

OTHER CONVENIENT PAGE ACCESS MODES

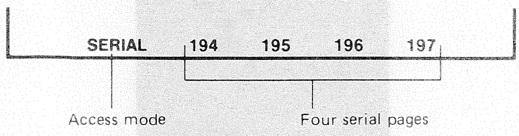
Access mode indication on a teletext page


PR. 03 CEEFAX 100 Thu 20 Apr 15.02
BBC1
BBC2
News 101
Finance 120
BBC Facts 140
Newsflash 150
Travel and Weather 151
TV/Radio 170
Sport 300
A-Z Index 199
201
220
230
250
270
251
300
700
299
LONDON TUBE LATEST...BBC1 164
TRAVEL SHOW GUIDE....BBC2 287
SERIAL
194
195
196
197
Access mode: DIRECT
GROUP
TV PR.
Pages currently in memory

The following page access modes are available with any system. To take best advantage of the adapter's page access capabilities, we recommend that users of the FASTEXT and TOP systems read the following pages as well.

A. Serial page access mode

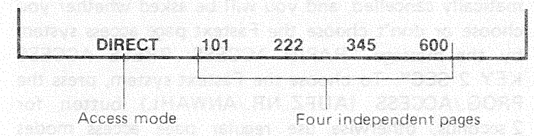
In the Serial Access mode, when one page is specified, the subsequent three pages are automatically put in memory. Pages that precede or follow these pages can also be called up by pressing the PAGE (SEITE) "–" or "+" button.



1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩ .
2. Press numeric key "1" ③ .
3. Check the bottom line of the screen where the access mode and page numbers are displayed.
   - If "SERIAL" is displayed, you are in the Serial Access mode.
4. To select the Serial Access mode, press the PROG./ACCESS (AUFZ.NR./ANWAHL) button ⑪ until "SERIAL" is obtained.
5. Enter the number of the page you wish to view with 10-key input ③.
   - The selected page will be searched and called up. The subsequent three pages will also be put in memory.
6. To view these pages, press the ROTATE (AUSWAHL) button ⑨.
7. If you want to successively view pages that precede or follow these pages, press the PAGE (SEITE) "–" or "+" button ⑥ , instead of ROTATE (AUSWAHL). This calls up the previous or next serial page, and replaces the first or last page in memory with the page preceding or following it. This process is repeated each time you press the PAGE (SEITE) button so you can successively view as many pages as you like.

B. Direct page access mode

In the Direct Access mode, 4 independent pages can be put in memory for instant call-up. After specifying the desired page numbers with 10-key input, select the one to be viewed with the ROTATE (AUSWAHL) button.



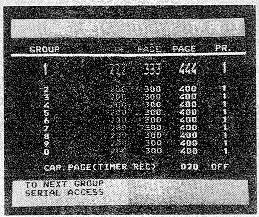
1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩ .
2. Press numeric key "1" ③ .
3. Check the bottom line of the screen where the access mode and page numbers are displayed.
   - If "DIRECT" is displayed, you are in the Direct Access mode.
4. To select the Direct Access mode, press the PROG./ACCESS (AUFZ.NR./ANWAHL) button ⑪ until "DIRECT" is obtained.
5. Enter the number of the page you wish to view with 10-key input ③.
   - The selected page will be searched and called up.
6. Move the cursor to the next column and enter the number of another page. Up to 4 pages can be put in memory.
7. Pages in memory can be called up instantly in succession by pressing the ROTATE (AUSWAHL) button ⑨.

C. Group page access mode

For quick access to favourite or frequently-referred-to pages, you can preset up to 40 pages (4 pages per one numeric key). These preset pages are called up by pressing the corresponding numeric key in the Group Access mode.

To preset pages, referring to the PAGE SET menu:

1. Press the MENU/TEXT (MENÜ/TEXT) button ⑩ .
2. Press numeric key "4" ③. The menu screen will change to the Page Set mode, and group number "1" is ready for entry.
   - Initial preset pages are 100, 200, 300 and 400 for all groups.



```
GROUP            PAGE  PAGE  PR.
  1        222    333   444   1
  2        200    300   400   1
  3        200    300   400   1
  4        200    300   400   1
  5        200    300   400   1
  6        200    300   400   1
  7        200    300   400   1
  8        200    300   400   1
  9        200    300   400   1
  0        200    300   400   1
   CAP. PAGE(TIMER REC)   020   OFF
 TO NEXT GROUP
 SERIAL ACCESS
```

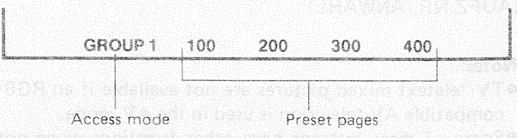
3. Press the PROG./ACCESS (AUFZ.NR./ANWAHL) button ⑪ to advance to the next group number.
4. Move the cursor to the page number columns with the CURSOR button ④ and enter the desired page numbers in succession with 10-key input ③.
   - To preset serial pages, simply press the PAGE (SEITE) "+" button ⑥ for the second, third and fourth page number columns.
5. Move the cursor to the channel column "PR." and enter the number of the channel broadcasting those pages (④ ③).
6. If all data is OK, press the OK/STORE (OK/SPEICHERN) button ⑬ .
7. Repeat the same procedure for other groups.
8. To go back to the menu screen, press the MENU/TEXT (MENÜ/TEXT) button ⑩ .

To preset pages referring to teletext pages:

This procedure lets you preset pages while confirming the contents of actual teletext broadcasts on the screen.

1. While in the Teletext mode, select the Direct Access mode with the PROG./ACCESS (AUFZ.NR./ANWAHL) button ⑪ .
2. Enter the numbers of pages you wish to view with 10-key input ③ in all the four columns as described in "B. Direct page access mode".
3. Then, select the Group Access mode with the PROG./ACCESS (AUFZ. NR./ANWAHL) button.
4. Press and hold (for about 2 seconds) one of the numeric keys to which you want to allocate this group.

To call up preset pages, proceed as follows:



1. Select "1. TELETEXT" on the menu screen.
2. To select the Group Access mode, press the PROG./ACCESS (AUFZ.NR./ANWAHL) button ⑪ until "GROUP" is obtained.
3. Press the numeric key ③ corresponding to the group number to which the desired preset pages have been allocated.
   - The first page of the preset pages will be called up.
4. To view the subsequent pages, press the ROTATE (AUSWAHL) button ⑨ .

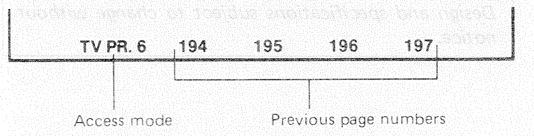
Notes:

- For selecting subpages (timed pages) see "REGARDING TIMED PAGES" on page 32.
- Timed pages cannot be preset in the Page Set mode.

D. Television channel access mode

You can switch from teletext programmes on one television channel to those on another channel without returning to the menu screen.

1. If you wish to view teletext pages on a different channel, press the PROG./ACCESS (AUFZ.NR./ANWAHL) button ❶ until the indication "TV PR." appears in place of the page access mode.
2. Select a different channel with 10-key input ❸.
   - A teletext page (if any) from the selected channel will appear on the screen. This page will correspond to the page number on which the cursor was last placed.
3. Select the required page access mode by pressing the PROG./ACCESS (AUFZ.NR./ANWAHL) button.
   - If the Direct or Serial Access mode is selected, the page numbers on the screen will function as they are.
   - If the Group Access mode is selected, select a page group preset for the new channel by pressing the corresponding numeric key.



CLOSED-CAPTION (CLOSED SUBTITLE) BROADCAST VIEWING AND RECORDING

Closed-caption programmes can be viewed simply by selecting the page carrying captions.

1. Engage the Teletext mode and check contents for closed-caption programmes.
2. Call up the relevant page using any of the page access methods.
   - The captioned programme will appear immediately. (There is no need to press the MIX (MISCHEN) button ⓬.)
   - By putting the VCR in the Record mode, this can also be recorded as it appears on the screen.

REGARDING TIMED PAGES

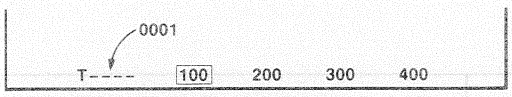
Pages which consist of several subpages (indicated by 1/x, 2/x, . . .) that change automatically are referred to as timed pages. To stop automatic change of timed pages, press the HOLD (HALTEN) button ⓭. If many subpages are included with one master page, you may want to view only required ones. The method of specifying required subpages differs depending on the engaged page access mode.

A. Subpage setting in the Group Access mode

In the Group Access mode, one subpage can be put in memory for each of the four preset master pages. To do this, proceed as follows:

1. While viewing teletext programmes in the Group Access mode, use the ROTATE (AUSWAHL) button ❾ to place the cursor on the number of the page which includes the subpage you wish to call up.

2. Press the TIMED PAGE (ZEIT-SEITE) button ❼.
   - "T ----" will appear in place of "GROUP X".

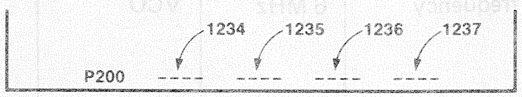


3. Enter the subpage number with 10-key input ❸.
   - Example: "0001" for 1/x.
   - The corresponding subpage will be called up.
   - Pressing the PAGE (SEITE) "–" or "+" button ❻ will change the subpage number in single increments in either direction.
   - The last selected subpage is in memory.
4. To move to another master page, use the ROTATE (AUSWAHL) button, and repeat steps 2 and 3 to view its subpages.
5. After one subpage has been put in memory for each master page, these can be called up by moving the cursor to the corresponding master page number with the ROTATE (AUSWAHL) button.
   - The memorized subpage data is retained until the page access mode is changed.
6. To cancel the Timed Page mode, press the TIMED PAGE (ZEIT-SEITE) button.
   - The previously engaged page access mode will resume.

B. Subpage setting in the Serial Access mode

In the Serial Access mode, it is possible to hold 4 serial subpages in memory for each master page.

1. While viewing teletext programmes in the Serial Access mode, place the cursor on the required master page number with the ROTATE (AUSWAHL) button ❾.
2. Press the TIMED PAGE (ZEIT-SEITE) button ❼.
   - The selected master page number will appear preceded by a "P" in the access mode column.
   - Example: P200

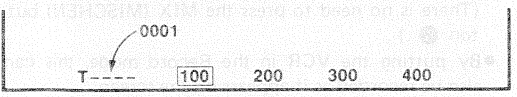


3. Enter the subpage number with 10-key input ❸.
   - Example: 1234
   - Pressing the PAGE (SEITE) "–" or "+" button will change the subpage number in single increments in either direction.
   - The following three subpages will be put in memory automatically.
4. To view these pages, press the ROTATE (AUSWAHL) button.
5. To cancel the Timed Page mode, press the TIMED PAGE (ZEIT-SEITE) button.
   - The previously engaged page access mode will resume.

C. Subpage setting in the Direct Access mode

In the Direct Access mode, one subpage can be put in memory for each master page.

1. While viewing teletext programmes in the Direct Access mode, place the cursor on the required master page number with the ROTATE (AUSWAHL) button ❾.
2. Press the TIMED PAGE (ZEIT-SEITE) button ❼.
   - "T - - - -" will appear in place of "DIRECT".



3. Enter the subpage number with 10-key input ❸.
   - The selected subpage will be called up.
   - To change the subpage number in single increments, press the PAGE (SEITE) "–" or "+" button.
   - The last selected subpage is in memory.
4. To move to another master page, use the ROTATE (AUSWAHL) button, and repeat steps 2 and 3 to view its subpages.

SPECIFICATIONS

GENERAL

Power requirement (supplied from VCR)
VU-V150E: DC 12 V, 320 mA or DC 5 V, 270 mA
VU-V140E: DC 12 V, 320 mA or DC 5 V, 240 mA
Temperature
Operating: 5°C to 40°C
Storage: –20°C to 60°C

INPUT/OUTPUT

Video input level (of signals to be decoded): 1 Vp-p, more than 10 k-ohms, unbalanced
VIDEO output level: 1 Vp-p, 75 ohms, unbalanced
RGB output level: 0.7 Vp-p, 75 ohms, unbalanced
Y/C output level: Y: 1 Vp-p, 75 ohms
C: 0.3 Vp-p, 75 ohms, unbalanced
Rapid switching output level: 1 to 3 Vp-p, 75 ohms, unbalanced

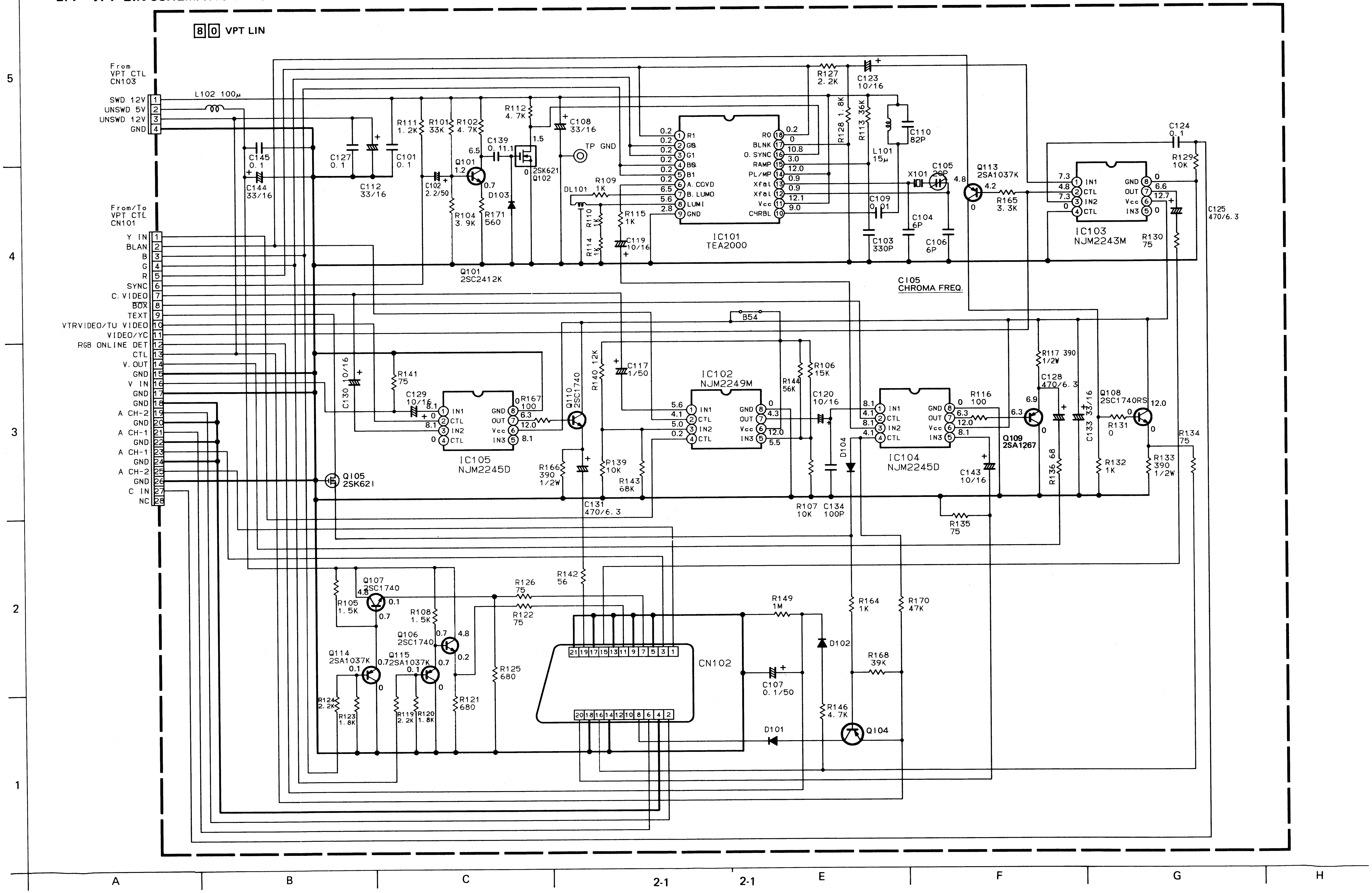
Design and specifications subject to change without notice.

1. ADJUSTMENT

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description and Waveform
1.	VCO frequency	TP-1 6 MHz	C24 VCO	E-E MODE	1. While VPT unit is operating, connect a frequency counter to TP1. 2. Adjust C24 for 6.0 MHz ± 200 Hz.
2.	Chroma frequency	VHS deck APC test point	C105 CHROMA	E-E MODE	1. Connect VPT unit to deck and set for operation. 2. Connect frequency counter to the APC frequency test point of the VHS deck. 3. Adjust C105 for 4.433619 MHz ± 50 Hz.

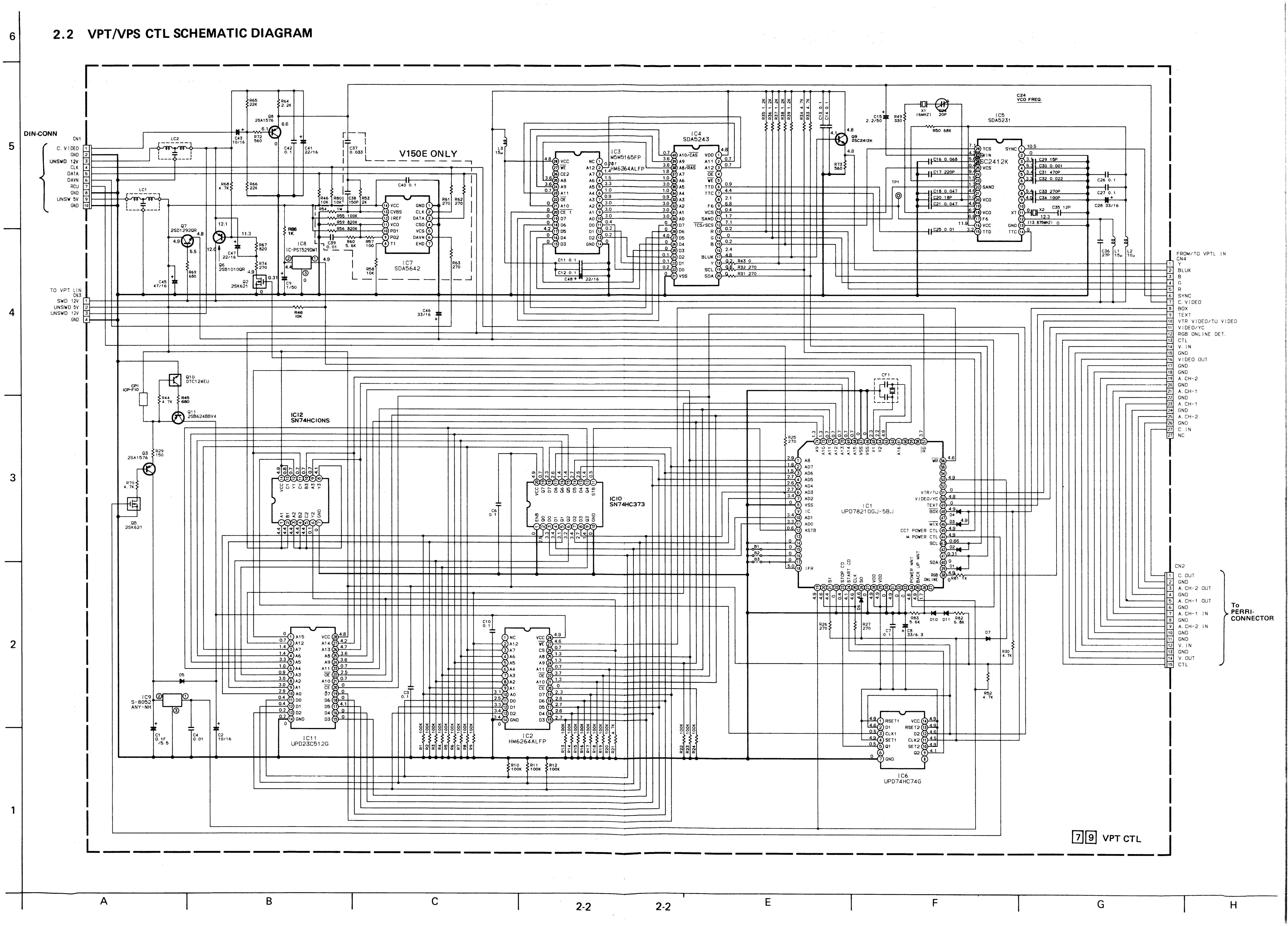
2. SCHEMATIC DIAGRAMS AND CIRCUIT BOARDS

2.1 VPT LIN SCHEMATIC DIAGRAM



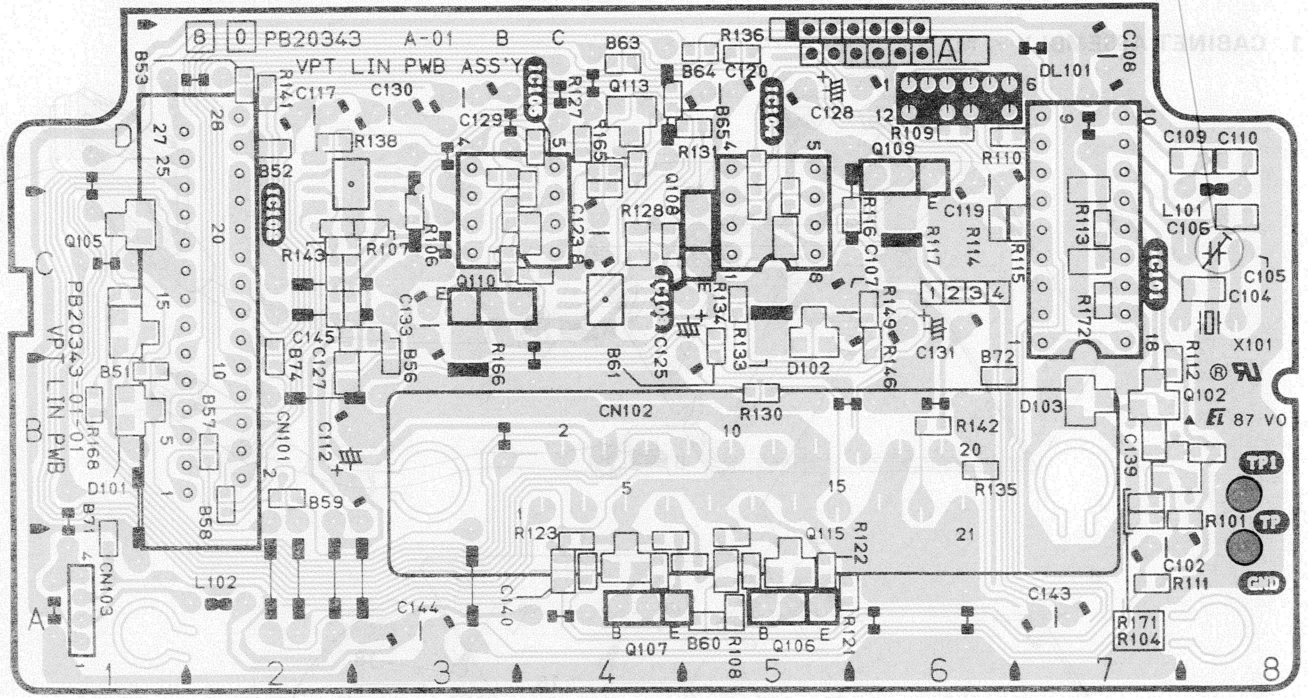
80 VPT LIN
From VPT CTL CN103
SWD 12V 1
UNSWD 5V 2
UNSWD 12V 3
GND 4
From/To VPT CTL CN101
Y IN 1
BLAN 2
B 3
G 4
R 5
SYNC 6
C. VIDEO 7
BOX 8
TEXT 9
VTRVIDEO/TU VIDEO 10
VIDEO/YC 11
RGB ONLINE DET 12
CTL 13
V. OUT 14
GND 15
V IN 16
GND 17
GND 18
A CH-2 19
GND 20
A CH-1 21
GND 22
A CH-1 23
GND 24
A CH-2 25
GND 26
C IN 27
NC 28
L102 100μ
C145 0.1
C144 33/16
C127 0.1
C112 33/16
C101 0.1
R111 1.2K
R101 33K
R102 4.7K
C102 2.2/50
Q101 2SC2412K
R104 3.9K
R171 560
C139 0.11.1
D103
R112 4.7K
2SK621 Q102
C108 33/16
TP GND
DL101
R109 1K
R110 1K
R114 1K
R115 1K
C119 10/16
IC101 TEA2000
R1 G8 G1 B8 B1 A.CGVD B.LUMO LUMI GND
RO BLNK O.SYNC RAMP PL/MP Xfal Xfal Vcc C4RBL
R127 2.2K
C123 10/16
R128 1.8K
R113 36K
C110 82P
L101 15μ
X101
C105 20P
C109 0.01
C103 330P
C104 6P
C106 6P
C105 CHROMA FREQ.
Q113 2SA1037K
R165 3.3K
IC103 NJM2243M
IN1 CTL IN2 CTL GND OUT Vcc IN3
C124 0.1
R129 10K
R130 75
C125 470/6.3
C130 10/16
R141 75
C129 10/16
IC105 NJM2245D
R167 100
Q110 2SC1740
R140 12K
R166 390 1/2W
C131 470/6.3
R139 10K
R143 68K
C117 1/50
B54
IC102 NJM2249M
R144 56K
R106 15K
C120 10/16
R107 10K
C134 100P
D104
IC104 NJM2245D
R116 100
C143 10/16
R135 75
Q109 2SA1267
R117 390 1/2W
C128 470/6.3
R136 68
C133 33/16
Q108 2SC1740RS
R131 0
R132 1K
R133 390 1/2W
R134 75
Q105 2SK621
Q107 2SC1740
R105 1.5K
R108 1.5K
Q106 2SC1740
Q114 2SA1037K
Q115 2SA1037K
R124 2.2K
R123 1.8K
R119 2.2K
R120 1.8K
R121 680
R126 75
R122 75
R125 680
R142 56
CN102
21 19 17 15 13 11 9 7 5 3 1
20 18 16 14 12 10 8 6 4 2
R149 1M
D102
C107 0.1/50
R146 4.7K
D101
Q104
R164 1K
R170 47K
R168 39K
6 5 4 3 2 1
A B C D E F G H

2.2 VPT/VPS CTL SCHEMATIC DIAGRAM


6
5
4
3
2
1
A
B
C
D
E
F
G
H
DIN-CONN
CN1
C. VIDEO
GND
UNSWD 12V
CLK
DATA
DAVN
RCU
GND
UNSW 5V
GND
TO VPT LIN
CN3
SWD 12V
UNSWD 5V
UNSWD 12V
GND
LC1
LC2
Q7 2SD1292QR
Q6 2SB1010QR
Q8 2SA1576
Q2 2SK621
Q10 DTC124EU
Q11 2SB624BBV4
Q3 2SA1576
Q5 2SK621
CP1 ICP-F10
IC8 IC-PST529DM1
IC7 SDA5642
V150E ONLY
IC3 M5M5165FP HM6264ALFP
IC4 SDA5243
Q9 2SC2412K
IC5 SDA5231
C24 VCO FREQ.
X1 (6MHZ)
X2 (13.875MHZ)
TP1
IC12 SN74HC10NS
IC10 SN74HC373
IC1 UPD78210GJ-5BJ
CF1
IC9 S-8052 ANY-NH
IC11 UPD23C512G
IC2 HM6264ALFP
IC6 UPD74HC74G
FROM/TO VPTL IN
CN4
Y
BLUK
B
G
R
SYNC
C. VIDEO
BOX
TEXT
VTR VIDEO/TU VIDEO
VIDEO/YC
RGB ONLINE DET.
CTL
V. IN
GND
VIDEO OUT
GND
GND
A. CH-2
GND
A. CH-1
GND
A. CH-1
GND
A. CH-2
GND
C. IN
NC
CN2
C. OUT
GND
A. CH-2 OUT
GND
A. CH-1 OUT
GND
A. CH-1 IN
GND
A. CH-2 IN
GND
GND
V. IN
GND
V. OUT
CTL
To PERRI-CONNECTOR
7 9 VPT CTL

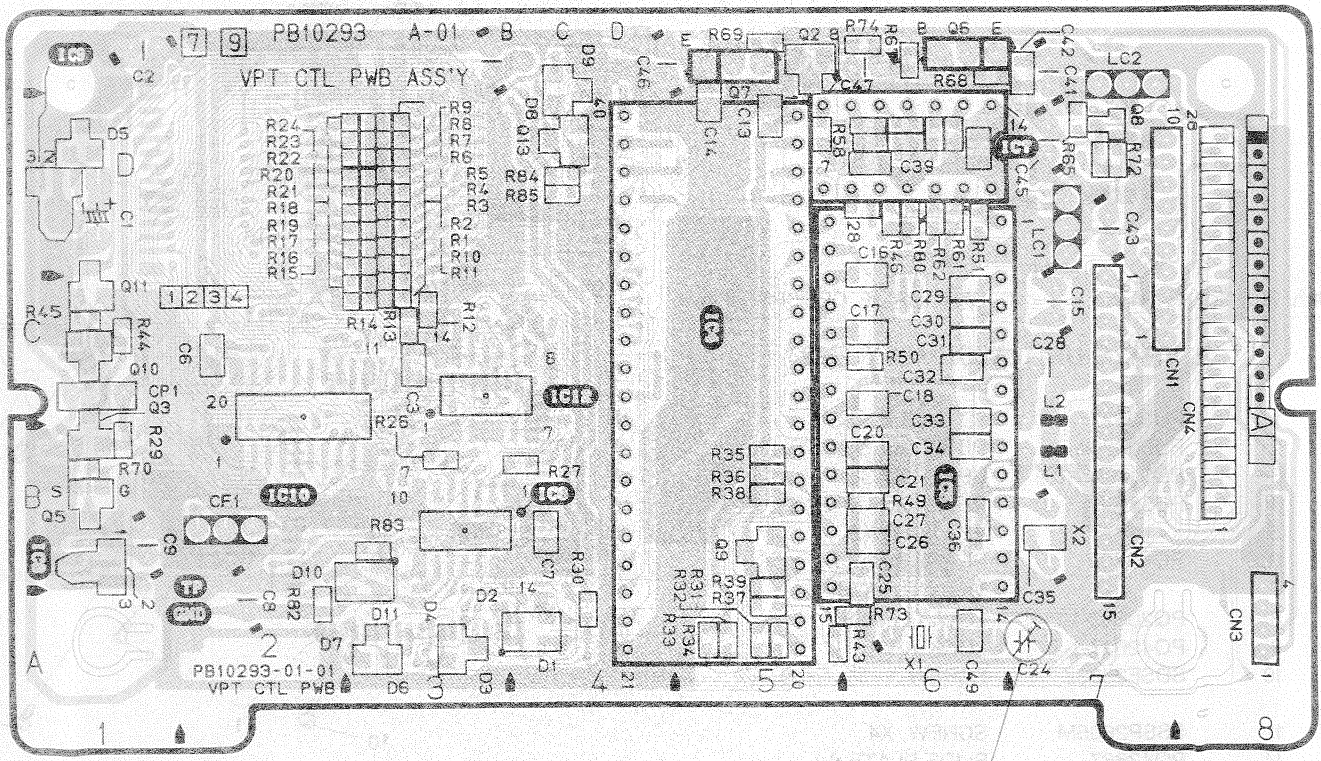
2.3 CIRCUIT BOARDS

– VPT LIN –


PB20343 A-01 B C
VPT LIN PWB ASS'Y
PB20343-01-01
VPT LIN PWB
CN101
CN102
CN103
IC101
IC102
IC103
IC104
IC105
IC107
DL101
X101
L101
L102
TP1
TP
GND
C105
C106
C104
C109
C110
Q102
Q105
Q106
Q107
Q109
Q110
Q113
Q115
D101
D102
D103
A
B
C
D
1
2
3
4
5
6
7
8

C105
CHROMA FREQUENCY

– VPT CTL –


PB10293 A-01 B C D
VPT CTL PWB ASS'Y
PB10293-01-01
VPT CTL PWB
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC10
CN1
CN2
CN3
CN4
LC1
LC2
CF1
X1
X2
L1
L2
TP
GND
C24
A
B
C
D
1
2
3
4
5
6
7
8

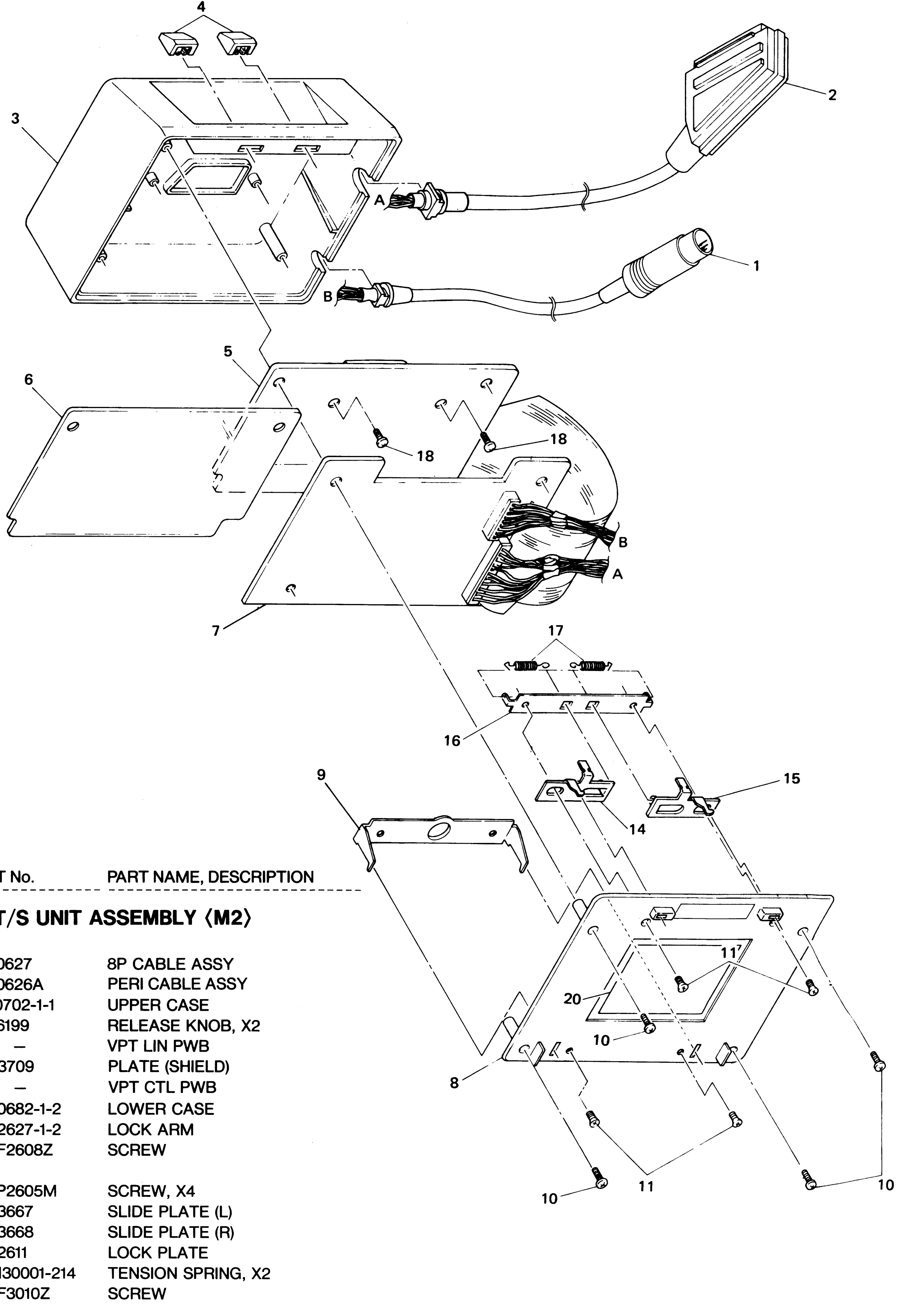
C24
CHROMA

3. EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

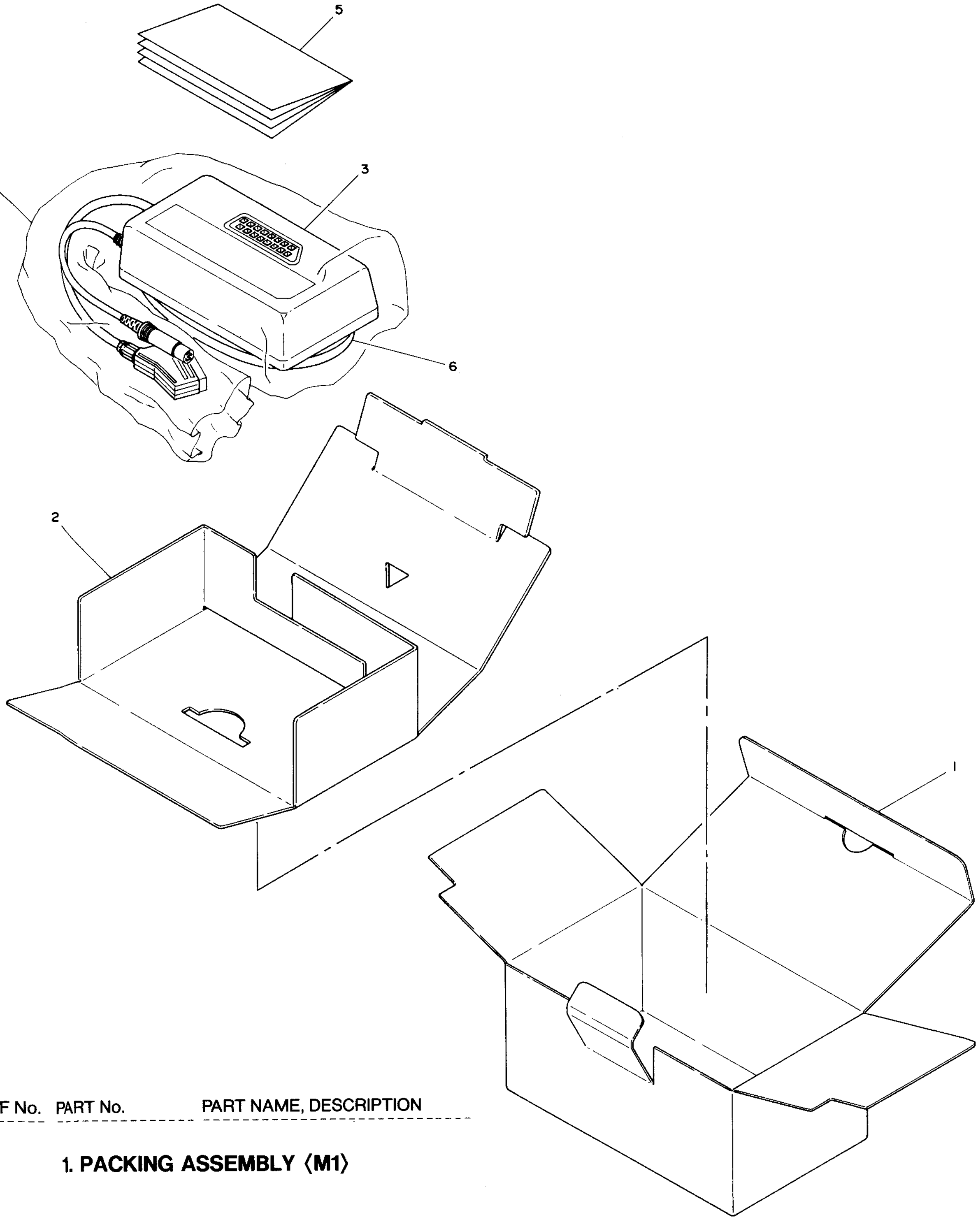
Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

3.1 CABINET ASSEMBLY <M2>



#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
			2. VPT/S UNIT ASSEMBLY 〈M2〉
	1	PU60627	8P CABLE ASSY
	2	PU60626A	PERI CABLE ASSY
	3	PQ10702-1-1	UPPER CASE
	4	PU36199	RELEASE KNOB, X2
	5	–	VPT LIN PWB
	6	PQ43709	PLATE (SHIELD)
	7	–	VPT CTL PWB
	8	PQ20682-1-2	LOWER CASE
	9	PQ42627-1-2	LOCK ARM
	10	SDSF2608Z	SCREW
	11	SSSP2605M	SCREW, X4
	14	PQ43667	SLIDE PLATE (L)
	15	PQ43668	SLIDE PLATE (R)
	16	PQ42611	LOCK PLATE
	17	PQM30001-214	TENSION SPRING, X2
	18	SDSF3010Z	SCREW

3.2 PACKING ASSEMBLY <M1>



1. PACKING ASSEMBLY ⟨M1⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ32574-11	PACKING CASE, FOR V140E
		PQ32574-12	PACKING CASE, FOR V150E
	2	PQ32576	CASE (M. CARTON)
	3	–	VPV/VPS UNIT
	4	QPGA012-02505	POLY BAG
⚠	5	PU30425-1056	INSTRUCTIONS, FOR V140E
⚠		PU30425-1064	INSTRUCTIONS, FOR V150E
	6	PQ43688	SPACER

4. ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

****

3. VPT CTL BOARD ASSEMBLY ⟨79⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10293A-01	VPT CTL BOARD ASSY	
	IC1	UPD78210GJ-5BJ	IC	
	IC2	HM6264ALFP	IC	
	IC3	HM6264ALFP	IC	
	or	M5M5165FP	IC	
	IC4	SDA5243	IC	
	IC5	SDA5231	IC	
	IC6	SN74HC74NS	IC	
	IC7	SDA5642	IC, FOR V150E ONLY	
	IC8	IC-PST529DMT-W	IC	
	IC9	S-8052ANY-NH-X	IC	
	IC10	SN74HC373NS	IC	
	IC11	UPD23C512E	IC	
	or	UPD27C512G	IC	
	IC12	SN74HC10NS	IC	
	Q2	2SK621	FE TRANSISTOR	
⚠	Q3	2SA1037K	TRANSISTOR	
	Q5	2SK621	FE TRANSISTOR	
	Q6	2SB1010(QR)	TRANSISTOR	
	Q7	2SD1292(QR)	TRANSISTOR	
	Q8	2SA1576	TRANSISTOR	
	Q9	2SC2412K	TRANSISTOR	
	Q10	DTC124EK	TRANSISTOR	
	Q11	2SB624-T2BBV4	TRANSISTOR	
	D1	MA159	DIODE	
	D2	MA159	DIODE	
	D3	DAP202K	DIODE	
	D4	DAP202K	DIODE	
	D5	DAN202K	DIODE	
	R1	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R2	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R3	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R4	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R5	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R6	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R7	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R8	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R9	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R10	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R11	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R12	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R13	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R14	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R15	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R16	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R17	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R18	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R19	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R20	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R21	NRSA63J-472N	RESISTOR	4.7KΩ, 1/16W
	R22	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R23	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R24	NRSA63J-104N	RESISTOR	100KΩ, 1/16W
	R25	NRSA63J-271N	RESISTOR	270Ω, 1/16W
	R26	NRSA63J-271N	RESISTOR	270Ω, 1/16W
	R27	NRSA63J-271N	RESISTOR	270Ω, 1/16W
	R29	NRSA63J-151N	RESISTOR	150Ω, 1/16W
	R30	NRSA63J-472N	RESISTOR	4.7KΩ, 1/16W
	R31	NRSA63J-271N	RESISTOR	270Ω, 1/16W
	R32	NRSA63J-271N	RESISTOR	270Ω, 1/16W
	R33	NRSA63J-472N	RESISTOR	4.7KΩ, 1/16W
	R34	NRSA63J-472N	RESISTOR	4.7KΩ, 1/16W
	R35	NRSA63J-122N	RESISTOR	1.2KΩ, 1/16W
	R36	NRSA63J-122N	RESISTOR	1.2KΩ, 1/16W
	R37	NRSA63J-122N	RESISTOR	1.2KΩ, 1/16W
	R38	NRSA63J-122N	RESISTOR	1.2KΩ, 1/16W
	R39	NRSA63J-122N	RESISTOR	1.2KΩ, 1/16W
	R43	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
	R44	NRSA63J-472N	RESISTOR	4.7KΩ, 1/16W
	R45	NRSA63J-681N	RESISTOR	680Ω, 1/16W
	R46	NRSA63J-103N	RESISTOR	10KΩ, 1/16W
	R47	NRSA63J-102N	RESISTOR	1KΩ, 1/16W
	R49	NRSA63J-331N	RESISTOR	330Ω, 1/16W
	R50	NRSA63J-683N	RESISTOR	68KΩ, 1/16W
	R52	NRSA63J-472N	RESISTOR	4.7KΩ, 1/16W
	R53	NRSA63J-202N	RESISTOR, FOR V150E	2.0KΩ, 1/16W
	R54	NRSA63J-105N	RESISTOR, FOR V150E	1MΩ, 1/16W
	R55	NRSA63J-104N	RESISTOR, FOR V150E	100KΩ, 1/16W
	R56	NRSA63J-824N	RESISTOR, FOR V150E	820KΩ, 1/16W
	R57	NRSA63J-101N	RESISTOR, FOR V150E	100Ω, 1/16W
	R58	NRSA63J-103N	RESISTOR, FOR V150E	10KΩ, 1/16W
	R59	NRSA63J-824N	RESISTOR, FOR V150E	820KΩ, 1/16W
	R60	NRSA63J-562N	RESISTOR, FOR V150E	5.6KΩ, 1/16W
	R61	NRSA63J-271N	RESISTOR, FOR V150E	270Ω, 1/16W
	R62	NRSA63J-271N	RESISTOR, FOR V150E	270Ω, 1/16W
	R63	NRSA63J-271N	RESISTOR, FOR V150E	270Ω, 1/16W
	R64	NRSA63J-222N	RESISTOR	2.2KΩ, 1/16W
	R65	NRSA63J-223N	RESISTOR	22KΩ, 1/16W
	R66	NRSA63J-223N	RESISTOR	22KΩ, 1/16W
	R67	NRSA63J-821N	RESISTOR	820Ω, 1/16W
	R68	NRSA63J-472N	RESISTOR	4.7KΩ, 1/16W
	R69	NRSA63J-681N	RESISTOR	680Ω, 1/16W
	R70	NRSA63J-472N	RESISTOR	4.7KΩ, 1/16W
	R72	NRSA63J-561N	RESISTOR	560Ω, 1/16W
	R73	NRSA63J-561N	RESISTOR	560Ω, 1/16W
	R74	NRSA63J-271N	RESISTOR	270Ω, 1/16W
	R80	NRSA63J-103N	RESISTOR	10KΩ, 1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R81	NRSA63J-102N	RESISTOR	1KΩ, 1/16W
	R82	NRSA63J-682N	RESISTOR	6.8KΩ, 1/16W
	R83	NRSA63J-562N	RESISTOR	5.6KΩ, 1/16W
	R86	NRSA63J-102N	RESISTOR	1KΩ, 1/16W
	C1	QEA40HZ-104	E CAPACITOR (DOUBLE)	0.1μF
	C2	QERF1CM-106	E CAPACITOR	10μF, 16V
	C3	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C4	QCYA1EK-103	CAPACITOR	0.01μF, 25V
	C6	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C7	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C8	QERF0JM-336	E CAPACITOR	33μF, 6.3V
	C9	QERF1HM-105	E CAPACITOR	1μF, 50V
	C10	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C11	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C13	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C14	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C15	QERF1HM-225	E CAPACITOR	2.2μF, 50V
	C16	QCFA1EZ-683	CAPACITOR	0.068μF, 25V
	C17	QCSA1HJ-221	CAPACITOR	220PF, 50V
	C18	QCFA1EZ-473	CAPACITOR	0.047μF, 25V
	C20	QCTA1CH-180	CAPACITOR	18PF, 16V
	C21	QCFA1EZ-473	CAPACITOR	0.047μF, 25V
	C24	QAT3120-200	TRIMMER CAPACITOR	
	C25	QCYA1EK-103	CAPACITOR	0.01μF, 25V
	C26	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C27	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C28	QERF1CM-336	E CAPACITOR	33μF, 16V
	C29	QCTA1CH-150	CAPACITOR	15PF, 16V
	C30	QCSA1HJ-102	CAPACITOR	0.001μF, 50V
	C31	QCSA1HJ-471	CAPACITOR	470PF, 50V
	C32	QCYA1EK-223	CAPACITOR	0.022μF, 25V
	C33	QCTA1CH-271	CAPACITOR	270PF, 16V
	C34	QCTA1CH-101	CAPACITOR	100PF, 16V
	C35	QCTA1CH-120	CAPACITOR	12PF, 16V
	C36	QCTA1CH-270	CAPACITOR	27PF, 16V
	C37	QCFA1EZ-333	CAPACITOR, FOR V150E	0.033μF, 25V
	C38	QCSA1HJ-151	CAPACITOR, FOR V150E	150PF, 50V
	C39	QCYA1EK-103	CAPACITOR, FOR V150E	0.01μF, 25V
	C40	QCFA1EZ-104	CAPACITOR, FOR V150E	0.1μF, 25V
	C41	QERF1CM-226	E CAPACITOR	22μF, 16V
	C42	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C43	QERF1CM-106	E CAPACITOR	10μF, 16V
	C45	QERF1CM-476	E CAPACITOR	47μF, 16V
	C46	QERF1CM-336	E CAPACITOR	33μF, 16V
	C47	QERF1CM-226	E CAPACITOR	22μF, 16V
	C48	QERF1CM-226	E CAPACITOR	22μF, 16V
	L1	PU59152-150J	COIL	15μH
	L2	PU59152-100J	COIL	10μH
	L3	QRD182J-0R0	RESISTOR	0μH
⚠	CF1	PU60414	CERAMIC FILTER	
	LC1	PU59736-223	N FILTER	
	LC2	PU59736-223	N FILTER	
	X1	PU61068	CRYSTAL RESONATOR	
	X2	PU60828	CRYSTAL RESONATOR	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	J1	QWE241-04A1A1	WIRE
	GND	PU56008	TEST-PIN
	CN1	PU58844-10	CAP HOUSING
	CN2	PU59555-15	CAP HOUSING
	CN3	PW30301-04305	WIRE
	or	PW30312-04305	WIRE
	CN4	PU60995	FLEX WIRE
⚠	CP1	ICP-F10	CIRCUIT PROTECTOR

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4. VPT LIN BOARD ASSEMBLY ⟨80⟩

REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB20343A-01	VPT LIN BOARD ASSY	
IC101	TEA2000	IC	
IC102	NJM2249M	IC	
IC103	NJM2243M	IC	
IC104	NJM2245D	IC	
IC105	NJM2245D	IC	
Q101	2SC2412K	TRANSISTOR	
Q102	2SK621	FE TRANSISTOR	
Q104	2SB624-T2BBV4	TRANSISTOR	
Q105	2SK621	FE TRANSISTOR	
Q106	2SC1740(RS)	TRANSISTOR	
Q107	2SC1740(RS)	TRANSISTOR	
Q108	2SC1740(RS)	TRANSISTOR	
Q109	2SA1267(YG)-TJK	TRANSISTOR	
or	2SA933S(RS)	TRANSISTOR	
Q110	2SC1740(RS)	TRANSISTOR	
Q113	2SA1037K	TRANSISTOR	
Q114	2SA1037K	TRANSISTOR	
Q115	2SA1037K	TRANSISTOR	
D101	DAN202K	DIODE	
D102	DAN202K	DIODE	
D103	DAN202K	DIODE	
D104	1SS133	DIODE	
R101	NRSA63J-333N	RESISTOR	33KΩ, 1/16W
R102	NRSA63J-472N	RESISTOR	4.7KΩ, 1/16W
R104	NRSA63J-392N	RESISTOR	3.9KΩ, 1/16W
R105	NRSA63J-152N	RESISTOR	1.5KΩ, 1/16W
R106	NRSA63G-153N	RESISTOR	15KΩ, 1/16W
R107	NRSA63G-103N	RESISTOR	10KΩ, 1/16W
R108	NRSA63J-152N	RESISTOR	1.5KΩ, 1/16W
R109	NRSA63J-102N	RESISTOR	1KΩ, 1/16W
R110	NRSA63J-102N	RESISTOR	1KΩ, 1/16W
R111	NRSA63J-122N	RESISTOR	1.2KΩ, 1/16W
R112	NRSA63J-472N	RESISTOR	4.7KΩ, 1/16W
R113	NRSA63J-363N	RESISTOR	36KΩ, 1/16W
R114	NRSA63J-102N	RESISTOR	1KΩ, 1/16W
R115	NRSA63J-102N	RESISTOR	1KΩ, 1/16W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R116	NRSA63J-101N	RESISTOR	100Ω, 1/16W
	R117	NRS125J-391NZ	RESISTOR	390Ω, 1/2W
	R119	NRSA63J-222N	RESISTOR	2.2KΩ, 1/16W
	R120	NRSA63J-182N	RESISTOR	1.8KΩ, 1/16W
	R121	NRSA63J-681N	RESISTOR	680Ω, 1/16W
	R122	NRSA63J-750N	RESISTOR	75Ω, 1/16W
	R123	NRSA63J-182N	RESISTOR	1.8KΩ, 1/16W
	R124	NRSA63J-222N	RESISTOR	2.2KΩ, 1/16W
	R125	NRSA63J-681N	RESISTOR	680Ω, 1/16W
	R126	NRSA63J-750N	RESISTOR	75Ω, 1/16W
	R127	NRSA63J-222N	RESISTOR	2.2KΩ, 1/16W
	R128	NRSA63J-182N	RESISTOR	1.8KΩ, 1/16W
	R129	NRSA63J-103N	RESISTOR	10KΩ, 1/16W
	R130	NRSA63J-750N	RESISTOR	75Ω, 1/16W
	R131	NRSA63J-0R0A	RESISTOR	0Ω, 1/16W
	R132	NRSA63J-102N	RESISTOR	1KΩ, 1/16W
	R133	NRS125J-391NZ	RESISTOR	390Ω, 1/2W
	R134	NRSA63J-750N	RESISTOR	75Ω, 1/16W
	R135	NRSA63J-750N	RESISTOR	75Ω, 1/16W
	R136	NRSA63J-680N	RESISTOR	68Ω, 1/16W
	R139	NRSA63G-103N	RESISTOR	10KΩ, 1/16W
	R140	NRSA63G-123N	RESISTOR	12KΩ, 1/16W
	R141	NRSA63J-750N	RESISTOR	75Ω, 1/16W
	R142	NRSA63J-560N	RESISTOR	56Ω, 1/16W
	R143	NRSA63G-683N	RESISTOR	68KΩ, 1/16W
	R144	NRSA63G-563N	RESISTOR	56KΩ, 1/16W
	R146	NRSA63J-472N	RESISTOR	4.7KΩ, 1/16W
	R149	NRSA63J-105N	RESISTOR	1MΩ, 1/16W
	R164	NRSA63J-102N	RESISTOR	1KΩ, 1/16W
	R165	NRSA63J-332N	RESISTOR	3.3KΩ, 1/16W
	R166	NRS125J-391NZ	RESISTOR	390Ω, 1/2W
	R167	NRSA63J-101N	RESISTOR	100Ω, 1/16W
	R168	NRSA63J-393N	RESISTOR	39KΩ, 1/16W
	R170	QRD162J-473	RESISTOR	47KΩ, 1/6W
	R171	NRSA63J-561N	RESISTOR	560Ω, 1/16W
	C101	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C102	QERF1HM-225	E CAPACITOR	2.2μF, 50V
	C103	QCTA1CH-331	CAPACITOR	330PF, 16V
	C104	QCTA1CH-6R0	CAPACITOR	6PF, 16V
	C105	QAT3120-200	TRIMMER CAPACITOR	
	C106	QCTA1CH-6R0	CAPACITOR	6PF, 16V
	C107	QERF1HM-104	E CAPACITOR	0.1μF, 50V
	C108	QERF1CM-336	E CAPACITOR	33μF, 16V
	C109	QCYA1EK-103	CAPACITOR	0.01μF, 25V
	C110	QCTA1CH-820	CAPACITOR	82PF, 16V
	C112	QER61CM-336	E CAPACITOR	33μF, 16V
	C117	QERF1HM-105	E CAPACITOR	1μF, 50V
	C119	QERF1CM-106	E CAPACITOR	10μF, 16V
	C120	QERF1CM-106	E CAPACITOR	10μF, 16V
	C123	QERF1CM-106	E CAPACITOR	10μF, 16V
	C124	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C125	QEU40JM-477	E CAPACITOR	470μF, 6.3V
	C127	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C128	QEU40JM-477	E CAPACITOR	470μF, 6.3V
	C129	QERF1CM-106	E CAPACITOR	10μF, 16V
	C130	QERF1CM-106	E CAPACITOR	10μF, 16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C131	QEU40JM-477	E CAPACITOR	470μF, 6.3V
	C133	QERF1CM-336	E CAPACITOR	33μF, 16V
	C134	QCS31HJ-101	CAPACITOR	100PF, 50V
	C139	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C143	QERF1CM-106	E CAPACITOR	10μF, 16V
	C144	QERF1CM-336	E CAPACITOR	33μF, 16V
	C145	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	L101	PU59152-150J	COIL	15μH
	L102	PU59152-101J	COIL	100μH
	DL101	PU61067	DELAY LINE	
⚠	X101	PU60831	CRYSTAL RESONATOR	
	TP1	PU56008	TEST-PIN	
	CN101	PU58798-128	CAP HOUSING	
	CN102	PU59592	PERI. CONN.	
	CN103	PU58844-4	CAP HOUSING	